

**Education**

- **University of Southern California**, Los Angeles, USA.
  - Ph.D. in Computer Science, January 2002 – (May 2007 expected). *Some computational problems motivated by the Birch and Swinnerton-Dyer Conjecture*. Advisors: Ming-Deh A. Huang and William Stein.
  - M.A. in Mathematics, August 2005 – .
  - M.S. in Computer Science, May 2005.
- **Birla Institute of Technology and Science**, Pilani, India.
  - B.E. (Hons.) in Computer Science, 1999.

**Employment**

- **University of Southern California**, Los Angeles, USA:
  - Teaching Assistant, Mathematics Department, August 2000 – May 2001.
  - Teaching and Research Assistant, Computer Science Department, January 2002 – .
- **Yianilos Labs**, Princeton, USA:
  - Intern, May – August 2001.
- **Honeywell Technology Solutions Lab**, Bangalore, India:
  - Software Engineer, July 1999 – June 2000.
  - Intern, July – December 1998.

**Grants**

- *Undergraduate Research Initiative with SAGE in Number Theory and Cryptography* with Ming-Deh A. Huang and Sheldon Kamienny. Funded by USC College of Letters, Arts and Sciences, expected to begin Summer 2007, \$ TDB.
- Travel grants to attend conferences in Australia, Canada, France and within USA awarded by the organizers.

**Professional Services**

- Co-Organizer *Workshop: Interactive Parallel Computation in Support of Algebra, Geometry and Number Theory*, MSRI, Berkeley, January 29 - February 2, 2007 with Demmel, J.; Goins, E.; Kalfoten, E.; Perez, E.; Stein, W.; Verrill, H.; Weening, J.  
<http://modular.math.washington.edu/msri07>.

**Publications**

1. *Deciding whether the  $p$ -torsion group of the  $\mathbb{Q}_p$ -rational points of an elliptic curve is non-trivial*, with Ming-Deh A. Huang. ANTS VI Poster Abstracts, SIGSAM Bulletin, Volume 38, No. 3, September 2004, Issue 149, 96–98.
2. *Elliptic curve torsion points and division polynomials*, with Ming-Deh A. Huang. Computational Aspects of Algebraic Curves, T. Shaska (Ed.), Lecture Notes Series on Computing, 13 (2005), 13–37, World Scientific.

**Selected Projects/Preprints in progress**

1. *Notes on certain quartic twists of an elliptic curve*, with Ming-Deh A. Huang.
2. *Two-dimensional modulo 7 Galois representations arising from elliptic curves over  $\mathbb{Q}$* , with Luis Dieulefait.

**Technical Reports**

1. *Computing rational torsion on elliptic curves in linear time* with Ming-Deh A. Huang. USC Computer Science Technical Report 04-824.
2. *On computing rational torsion on elliptic curves* with Ming-Deh A. Huang. USC Computer Science Technical Report 05-842.
3. *Factoring integers and computing elliptic curve rational points* with Ming-Deh A. Huang. USC Computer Science Technical Report 06-875.

**Class Notes**

1. *Introduction to Cryptography* with Ming-Deh A. Huang, Fall 2002.  
<http://www-scf.usc.edu/~burhanud/cs556.html>.

2. *Curve Based Cryptography*, with Ming-Deh A. Huang, Spring 2002.  
<http://www-scf.usc.edu/~burhanud/cs599.html>.

## Computation

- Contributor to SAGE – System for Algebra and Geometry Experimentation. Scripts, feedback on design, posting bugs, talks. <http://sage.math.washington.edu/>.
- Experience with
  - Operating Systems: Linux, Mac OS X, Windows.
  - Languages: C, Visual C++, Visual Basic, Python.

## Talks

- *On Computing Discrete Logarithms in Formal Groups and its Applications*
  - ACA: Applications of Computer Algebra, North Carolina State University, Raleigh, July 28, 2003
  - MNTCG: Midwest Number Theory Conference for Graduate Students and Recent PhDs, University of Wisconsin, Madison, October 25, 2003
  - MPKC: Mathematics of Public Key Cryptography 2003, University of Illinois, Chicago, November 7, 2003
  - Algebra Seminar, USC, Los Angeles, December 1, 2003
  - Seminar/Colloquia, The Institute of Mathematical Sciences, Chennai, India, January 2, 2004
  - Theory group seminar, Indian Institute of Technology, Chennai, India, January 7, 2004
- *Computing rational torsion on elliptic curves in linear time*
  - WCAG: Workshop on Computational Arithmetic Geometry, PIMS, Simon Fraser University, Burnaby, Canada, July 6, 2004
  - ACA 2004: Applications of Computer Algebra, Beaumont, Texas, July 20, 2004
- *Algorithms for computing elliptic curve rational torsion*. Conference on Computational Aspects of Algebraic Curves University of Idaho, Moscow, Idaho, May 27, 2005
- *Some computational problems motivated by the BSD conjecture*
  - Seminar/Colloquia, The Institute of Mathematical Sciences, Chennai, India, January 12, 2006
  - Number Theory Seminar, UCLA, Los Angeles, March 6, 2006
  - Graduate Student Colloquium, USC, Los Angeles, April 19, 2006
- *Factoring integers and computing elliptic curve rational points*. SAGE Days 1, University of California, San Diego, February 5, 2006
- *Heegner Point Computation* with David Brown, Wei Ho, Joseph Rabinoff and Patrick Rault. AWS 2006 University of Arizona, Tucson, March 15, 2006
- *Mestre's Method of Graphs*. MSRI 2006: Computing with Modular Forms MSRI, Berkeley, August 11, 2006
- *Computing Elliptic Curve Rational Torsion and SAGE*. SAGE Days 2, University of Washington, Seattle, October 7, 2006

## Conferences attended

Over two dozen conferences and workshops attended. For a complete list see <http://www-scf.usc.edu/~burhanud/travel.html>.

## Teaching

### University of Southern California

- *Teaching Assistant*. Department of Mathematics. Responsibilities included holding discussion sessions, setting and grading quizzes, and grading exams.
  - MATH 117 Mathematics for Business students. Fall 2000.
  - MATH 116 Mathematics for Social Sciences. Spring 2001.
- *Teaching Assistant*. Department of Computer Science. Responsibilities included holding review sessions, making homework solutions, grading quizzes and exams, and occasionally filling in for the professor.
  - CSCI 271 Discrete Methods in Computer Science. Spring, Fall 2002.

- CSCI 570 Analysis of Algorithms. Summer, Fall 2003, Spring, Summer, Fall 2004, Spring, Fall 2005, Spring, Fall 2006.
- *Grader*. Department of Computer Science. Responsibilities included making homework solutions, grading homeworks and exams, and occasionally filling in for the professor.
  - CSCI 556 Cryptography. Fall 2001, Fall 2002.
  - CSCI 303 Algorithms. Spring 2002.

**Affiliations**

- International Honor Society for Computer Sciences, UPE.

**Awards**

- Best Teaching Assistant, Computer Science, University of Southern California, Fall 2003.
- Award for securing the 26th rank out of 300,000 students who appeared for the Higher Secondary Examinations in 1995 by the State Government of Tamil Nadu, India.

**Personal**

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